

**UNITED STATES DEPARTMENT OF COMMERCE****Patent and Trademark Offic**Address: COMMISSIONER OF PATENTS AND TRADEMARKS
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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. |
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09/505,501 02/17/00 O MEARA

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EXAMINER

BAKER, A

ART UNIT

PAPER NUMBER

3641

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DATE MAILED:

07/26/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

| | | |
|-----------------------------|-----------------------|------------------|
| Offic Action Summary | Application N . | Applicant(s) |
| | 09/505,501 | O MEARA ET AL. |
| | Examiner Brian Lee | Art Unit 3641 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 16 April 2001.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-7 and 19-24 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are objected to by the Examiner.

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) Notice of References Cited (PTO-892) 18) Interview Summary (PTO-413) Paper No(s). _____.

16) Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) Notice of Informal Patent Application (PTO-152)

17) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 20) Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armantrout '442 in view of Pierce '344.

Armantrout '442 disclose the prior art preparation of a double base propellant binder comprising nitrocellulose dissolved in acetone and a plasticizer. Armantrout '442 in his invention eliminates the use of a solvent by using a liquid binder and adding the use of a stabilizer.

Pierce '344 teaches the use of crosslinking nitrocellulose with an isocyanate to form a double base propellant binder. Pierce '344 uses the double base propellant binder to process solid propellant grains.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add the use of a stabilizer and a solvent when using a solid binder in order to prepare the lacquer prior the preparation of the propellant and to use the double base propellant binder of Armantrout '442 to process solid propellant grains as taught by Pierce'344. Also it is notoriously well known to have perforations in propellant grains to enhance the burning rate and

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to posses superior ignition and flame permeability and therefore would have been obvious to form the grains with perforations.

3. Claims 19-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armantrout '442 as applied to claims 1-7 above, and further in view of Smith et al '013, and Jacobson '248.

Smith et al '013 teaches the shape of a perforated propellant grain to have a circular cross-section (Figure 1).

Jacobson '248 teaches the shape of a perforated propellant grain to have outwardly extending ridges (Figure 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to process the shape of a perforated propellant grain to have a notorious well known circular cross-section as taught by Smith et al '013 or a propellant grain having a perforation of any shape, absence any unexpected results.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to process the shape of a perforated propellant grain to have outwardly extending ridges to act as channels which allow transmission of ignition gas uniformly throughout the assembled charge as taught by Jacobson '248 (col. 3, lines 7-10).

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Drawings

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, Figure 1B must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Currently, Figure 1B does not show the ellipsoid shape.

Response to Arguments

5. Applicant's arguments with respect to claims 1-7 and 19-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office Action. **THIS ACTION IS MADE FINAL**. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory

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action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Lee whose telephone number is (703) 306-0552. The examiner can normally be reached on Monday through Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone, can be reached on (703) 306-4198. The fax phone number for the organization where this application or proceeding is assigned (703) 305-7687.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

MICHAEL J. CARONE
SUPERVISORY PATENT EXAMINER